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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/816,523	04/01/2004	Jani Hamalainen	59864.01276	9893
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Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/816,523	HAMALAINEN, JANI
	Examiner	Art Unit
	Elisa M. Rice	2609

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extension of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) 17 and 18 is/are allowed.
- 6) Claim(s) 1-9, 11-15 and 19 is/are rejected.
- 7) Claim(s) 10 and 16 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 01 April 2004 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)	5) <input type="checkbox"/> Notice of Informal Patent Application
Paper No(s)/Mail Date _____	6) <input type="checkbox"/> Other: _____

## **DETAILED ACTION**

### ***Specification***

1. The disclosure is objected to because of the following informalities: The embodiment recited by claim 17 wherein a facial shape is extracted from a 3D model and subsequently compared at the mobile terminal with a stored profile is only ever described in the specification in the "summary"; and not in the detailed description. The various embodiments to which the claims are drawn should all be described in the detailed description.

Appropriate correction is required.

### ***Claim Objections***

2. Claims 3 and 8 are objected to under CFR 75(a) for failing to distinctly point out and claim the invention.

(i) The examiner has noted two claim 3s, it has been assumed for purposes of examination that the second claim 3 will be considered claim 19. It is suggested to change the second claim 3 to claim 19.

(ii) Claim 8, line 1 is unclear to what claim it depends from, and it has been assumed for purposes of examination that claim 8 depends from the first claim 3. If otherwise, the claim must depend from the newly numbered second claim 3 (claim 19).

### ***Claim Rejections - 35 USC § 103***

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3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1, 2, 3, 5, 6, 7, 8, 9, 11 and 12** are rejected under 35 U.S.C. 103(a) as being unpatentable over Usui et. al (JP404242106A - a translation is on order and will be provided with the mailing of the next office action) in view of Mack et al. (US patent 6,377,700), Teitelbaum (US 5,872,834) and Picone et. al. (US 5,293,452).

**Regarding claim 1,** Usui discloses a face recognizing apparatus ("To provide a face recognizing apparatus by which the recognizing rate is further improved", Abstract) comprising:

at least one camera directed toward the user's face (Usui, Figure 2, numeral 112);  
memory means for storing user profile information relating to authorized users of a system (Usui, Figure 1, numeral 17);  
processing means connected to said at least one camera for processing the still images obtained by said at least one camera (Figure 1, numeral 13) and generating a 3-dimensional model of the user's face (Usui, Figure 2, numeral 15, see Figures 3, 5-7), and

processing means for comparing the generated model with the stored user profile information to determine the user (Figure 1, numeral 16).

Usui does not teach (underlined):

(1) at least one camera adapted to record at least two still images of the user from at least first and second angles of view;

(2) a mobile hand held terminal for recognizing a user's identity during an attempt to access the mobile terminal;

(3) processing means for comparing the generated model with the stored user profile information to determine whether the user is authorized to access a system, said processing means comprising means for granting access to the system when the generated model matches the profile information of one of the authorized users stored in the memory means, thereby indicating recognition and authorization of the user; and

(4) means for updating the profile information of the one of the authorized users with the generated model after each grant of access by said means for granting access such that the updated profile information comprises an average of the generated model and the previously stored profile information.

Mack discloses a method and apparatus for capturing stereoscopic images using image sensors ("The present invention relates generally to three-dimensional (3-D) models and, in particular, to a method and apparatus for capturing stereoscopic images to be processed into 3-D models of objects.", column 1, line 8) wherein at least two

cameras are directed toward the user's face and adapted to record at least two still images of the user from at least first and second angles of view (Mack, Figure 2, numeral 22 and 23).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize, as the image 3D image capture system of Usui, the plural camera system of Mack whereby at least two still images of the user's face are recorded from first and second angles, in order to provide a well known, robust and reliable way with which to capture three dimensional points for modeling an object ("In creating three-dimensional (3-D) models of real objects, a multitude of images of real objects are taken from different positions to exploit the differences in the objects' projection." Mack, column 2, line 40) and without specialized equipment and operating expertise ("by using a 3-D imaging device system that can capture images of objects which are subsequently used to create 3-D data would allow consumers without special expertise to generate 3-D models of real objects expeditiously and with ease" as stated by Mack in column 1, line 52).

While the combination between Usui and Mack discloses the invention above, the combination does not teach

(2) a mobile hand held terminal for recognizing a user's identity during an attempt to access the mobile terminal;

(3) processing means for comparing the generated model with the stored user profile information to determine whether the user is authorized to access a system, said

processing means comprising means for granting access to the system when the generated model matches the profile information of one of the authorized users stored in the memory means, thereby indicating recognition and authorization of the user; and

(4) means for updating the profile information of the one of the authorized users with the generated model after each grant of access by said means for granting access such that the updated profile information comprises an average of the generated model and the previously stored profile information.

Teitelbaum discloses a telephone with biometric sensing device ("This invention relates generally to telephones and more particularly to a telephone provided with a contact imaging device for identifying an operator of the telephone.", column 1, line 6) comprising:

(1) a mobile hand held terminal for recognizing a user's identity during an attempt to access the mobile terminal ("the contact imaging device allows for a user of the telephone to be identified", column 4, line 14);

(2) processing means for comparing the generated model with the stored user profile information to determine whether the user is authorized to access a system ("The comparator means analyzes the biometric data for identifiable features and compares predetermined features against those of biometric templates stored in non-volatile memory.", Teitelbaum, column 11, line 35), said processing means comprising means for granting access to the system when the generated model matches the profile information of one of the authorized users stored in the memory means, thereby

indicating recognition and authorization of the user ("Once identified, the salesman is provided access to telephone features and services in a predetermined manner.", Teitelbaum, column 8, line 50).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the three dimensional modeling and biometric (i.e., facial) biometric system of the Usui and Mack combination described above, into the mobile hand held terminal of Teitelbaum to determine whether the user is authorized to access a system, in order to provide Teitelbaum with a contact free method of capturing a biometric (i.e., a face instead of a fingerprint) for the convenience of the user, and to ensure accuracy of recognition ("recognizing rate is further improved" at Usui, abstract).

While the combination between Usui, Mack, and Teitelbaum disclose the invention above, the combination does not teach a means for updating the profile information of the one of the authorized users with the generated model after each grant of access by said means for granting access such that the updated profile information comprises an average of the generated model and the previously stored profile information.

Picone discloses a voice log-in using spoken name input ("This invention is a voice log-in technique in which access to, for example, a medical records database, is granted based on the computerized recognition of a person's spoken name.", column 2, line 24) that teaches a means for updating the profile information of the one of the authorized users with the generated model after each grant of access by said means for granting access such that the updated profile information comprises an average of the

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generated model and the previously stored profile information ("For each successful verification, the dynamic reference updating procedure averages the feature sets associated with the reference template and the input speech, and the reference template is updated accordingly," Picone, column 2, line 1)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add a means for updating the profile information of the one of the authorized users with the generated model after each grant of access by said means for granting access such that the updated profile information comprises an average of the generated model and the previously stored profile information as taught by Picone to the combination of Usui, Mack, and Teitelbaum in order to accommodate gradual changes in appearance and maintain recognition over a long time period ("thereby accommodating changes.", Picone, column 2, line 5)

**Regarding claim 2,** Mack further comprises a light source for projecting light at the user's face (Mack, Figure 4, numeral 41).

**Regarding claim 3,** Mack further teaches a light source wherein the light source projects structured light onto the user's face to facilitate the generation of the 3-dimensional model (Mack, Figure 4, numeral 42).

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**Regarding claim 5,** Usui further teaches said memory means comprising at least one selected from a group consisting of RAM, ROM, EPROM, and a magnetic storage media, which would be an inherent feature of the database used to store existing user profiles depicted in Usui's drawings (Usui, Figure 1, numeral 17).

**Regarding claim 6,** Usui teaches a processing means comprising a computer, said memory means being contained within said computer (Usui, Figure 2, numeral 114).

**Regarding claim 7,** while the combination between Usui, Mack, Teitelbaum, and Picone as applied to claim 1 does teach at least one camera adapted to obtain a 2-dimensional still image of the user's face and a 3-dimensional model to determine whether the user is authorized to access the system, the combination does not teach wherein the obtained 2-dimensional still image of the user's face is used to determine the user's facial texture, the determined facial texture being used in conjunction with the generated 3-dimensional model to determine whether the user is authorized to access the system.

Mack teaches the obtained 2-dimensional still image of the user's face being used to determine the user's facial texture.

It would have been obvious to one of ordinary skill in the art to further modify the 3-dimensional face recognition apparatus taught by the combination between Usui, Mack, Teitelbaum, and Picone to include textural face data as taught by Mack, in

conjunction with the generated 3-dimensional model, to determine whether the user is authorized to access the system, because textural face data provides additional information for comparison for the recognition system "such as physical surface properties of an object" (Mack, column 3, line 631).

**Regarding claim 8,** while the combination between Usui, Mack, Teitelbaum, and Picone teaches the invention of claim 1, the combination does not teach wherein said light source comprises at least one selected from a group consisting of white light, Laser light and infrared light.

Mack discloses a method and apparatus for capturing stereoscopic images using image sensors ("The present invention relates generally to three-dimensional (3-D) models and, in particular, to a method and apparatus for capturing stereoscopic images to be processed into 3-D models of objects.", column 1, line 8) that teaches wherein said light source comprises at least one selected from a group consisting of white light,

Laser light and infrared light ("Alternatively, the vertical lines 21 may be projected onto the object 20 using light source 16 such as infra-red laser or visible laser.", Mack, column 15, line 65).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the infrared light as the light source as taught by Mack in the invention created by the combination of Usui, Mack, Teitelbaum, and Picone infrared

light is not visible and therefore more transparent and passive for the comfort of the user (“generating non-visible light output (e.g. infra-red)” (Mack, column 5, line 57 ).

**Regarding claim 9,** the combination between Usui, Mack, Teitelbaum, and Picone, which teaches the invention of claim 1 discussed above, also teaches wherein the mobile terminal is a mobile telephone (Teitelbaum, Figure 12).

**Regarding claim 11,** Mack of the combination between Usui, Mack, Teitelbaum and Picone, which teaches the invention of claim 1, further comprises means for determining an orientation of the mobile terminal for determining an angle between said at least first and second angle of view (Mack, Figure 6)

**Regarding claim 12,** Mack of the combination between Usui, Mack, Teitelbaum, and Picone, which teaches the invention of claim 1, discloses wherein said at least one camera comprises first and second cameras, said first camera adapted to record at least one still image of the user from at least the first angle of view and said second camera adapted to record at least one still image of the user from at least the second angle of view (Mack, Figure 12 )

5. **Claims 19, 4, 13, 14, and 15** are rejected under 35 U.S.C. 103(a) as being unpatentable over Usui et. al (JP404242106A - a translation is on order and will be

provided with the mailing of the next office action), Mack et al. (US patent 6,377,700) , Teitelbaum (US 5,872,834), Picone et. al. (US 5,293,452) and Sadovnik (US 5,497,430).

**Regarding claims 19 and 4,** Usui does not teach at least one camera comprising a charged couple device (CCD) camera, which is a digital camera.

Sadovnik discloses at least one camera comprising a charged couple device camera, which is a digital camera, in the analogous area of biometric recognition systems ("At the same time, one would like to use existing inexpensive CCD video cameras", Sadovnik, column 13, line 46).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a CCD video camera, which is a digital camera, because they are relatively inexpensive ("At the same time, one would like to use existing inexpensive CCD video cameras", Sadovnik, column 13, line 46).

**Regarding claim 13,** the invention of claim 12 is obvious in view of Usui, Mack, Teitelbaum, Picone and Sadovnik for the same reasons and motivation as applied to claims 1, 3 and 7 above.

**Regarding claim 14,** Mack of the Usui, Mack, Teitelbaum, Picone, and Sadovnik combination discussed in claim 13 further comprises a light source for projecting

structured light on the user's face for use in obtaining said at least two still images of the user's face (Mack, Figure 6, numeral 30 and 32).

**Regarding claim 15,** Teitelbaum of the Usui, Mack, Teitelbaum, Picone, and Sadovnik combination discussed in claim 13, teaches wherein said mobile terminal is a mobile telephone (Teitelbaum, Figure 12).

***Double Patenting***

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claim 1 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 12 of U.S. Patent No. 6,775,397 B1. The conflicting claims are not identical because patent claim 12 requires the additional elements of "first" and "second" cameras, as well as a "light source", not required by claim 1. However, the conflicting claims are not patentably distinct from each other because:

- Claims 1 and 12 recite common subject matter;
- Whereby claim 1, which recites the open ended transitional phrase "comprising", does not preclude the additional elements recited by claim 12, and
- Whereby the elements of claim 1 are fully anticipated by patent claim 12, and anticipation is "the ultimate or epitome of obviousness" (*In re Kalm*, 154 USPQ 10 (CCPA 1967), also *In re Dailey*, 178 USPQ 293 (CCPA 1973) and *In re Pearson*, 181 USPQ 641 (CCPA 1974)).

Furthermore, the remaining claims in the application are either anticipated and/or obvious in view of the art of record. However, a timely filed terminal disclaimer in

compliance with 37 CFR 1.321(c) or 1.321(d) may be effective to overcome this rejection.

***Allowable Subject Matter***

7. Claims 17 and 18 are allowed. Regarding claims 17 and 18, the prior art of record does not reasonably teach or suggest the steps of sending, from a mobile terminal, 2D still images over a network to sever, generating a 3D model at the server, determining facial shape using the 3D model, sending the shape and model back to the mobile terminal, and determining whether the shape data matches a profile stored in memory.

8. Claims 10 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Regarding claims 10 and 16, the prior art does not teach the invention of claim 1, where the mobile terminal transmits the images to a server over a network and receives a 3-dimensional model and a facial texture bit map from the server.

***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elisa M. Rice whose telephone number is (571)270-1580. The examiner can normally be reached on 8:00a.m.-5:30p.m. EST Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian P. Werner can be reached on (571)272-7401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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